Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

Claims 1-51. (canceled)

52. (amended) A method for processing fragment analysis data comprising:

- Receiving the fragment analysis data wherein the data represents intensity <u>values</u> and nucleic acid fragment length information,

- Determining the peaks of the fragment analysis data and forming a signal <u>envelop</u> from said peaks,

- Determining the minima and maxima of the signal <u>envelope</u> and dividing the signal <u>envelope</u> into panels with boundaries at each local minimum,

- Determining if at least three panels exist, and if so,

- Computing <u>an</u> ~~the~~ energy <u>value</u> ~~in~~ for each panel,

- Performing <u>a first test by computing a first</u> ~~to determine if the~~ ratio of the energy <u>value</u> in the panel with the second greatest energy <u>value</u> to the energy <u>value</u> in the panel with the greatest energy <u>value and determining if the first ratio</u> exceeds a first threshold <u>and if so, the first test is considered a pass,</u>

- Performing <u>a second test by computing a second</u> ~~to determine if the~~ ratio of the energy <u>value</u> in the panel with the third greatest energy <u>value</u> to the energy <u>value</u> in the panel with the second greatest energy <u>value and determining if the second ratio</u> exceeds a second threshold <u>and if so, the second test is considered a pass,</u>

- Calling alleles in each of the first and second panels if the first and second tests are passed, and

- Reporting the allele calls to a user.

53. (amended) The method of claim 52 wherein said calling alleles step comprises:

- Defining a first allele in the panel with the greatest energy <u>value</u> as the fragment length corresponding to the maximum intensity value in the first panel, and

- Defining a second allele in the panel with the second greatest energy <u>value</u> as the fragment length corresponding to the maximum intensity value in the second panel.

54. (amended) The method of claim 52 wherein the energy <u>value</u> is defined <u>by</u> ~~as~~ summing the square of the signal <u>envelope</u> contained in the panel.

55. (amended) A computer readable medium containing instructions for controlling a computer system to perform a method of processing fragment analysis data, the method comprising:

- Receiving the fragment analysis data wherein the data represents intensity <u>values</u> and nucleic acid fragment length information,

- Determining the peaks of the fragment analysis data and forming a signal <u>envelop</u> from said peaks,

- Determining the minima and maxima of the signal <u>envelope</u> and dividing the signal <u>envelop</u> into panels with boundaries at each local minimum,

- Determining if at least three panels exist, and if so,

- Computing <u>an</u> ~~the~~ energy <u>value</u> ~~in~~ for each panel,

- Performing <u>a first test by computing a first</u> ~~to determine if the~~ ratio of the energy <u>value</u> in the panel with the second greatest energy <u>value</u> to the energy <u>value</u> in the panel with the greatest energy <u>value and determining if the first ratio</u> exceeds a first threshold <u>and if so, the first test is considered a pass,</u>

- Performing <u>a second test by computing a second</u> ~~to determine if the~~ ratio of the energy <u>value</u> in the panel with the third greatest energy <u>value</u> to the energy <u>value</u> in the panel with the second greatest energy <u>value and determining if the second ratio</u> exceeds a second threshold <u>and if so, the second test is considered a pass,</u>

- Calling alleles in each of the first and second panels if the first and second tests are passed, and
- Reporting the allele calls to a user.

56. (amended) The computer readable medium of claim 55 wherein said calling alleles step comprising:

- Defining a first allele in the panel with the greatest energy <u>value</u> as the fragment length corresponding to the maximum intensity value in the first panel, and
- Defining a second allele in the panel with the second greatest energy <u>value</u> as the fragment length corresponding to the maximum intensity value in the second panel.

57. (amended) The computer readable medium of claim 55 wherein the energy is defined <u>by</u> ~~as a~~ summing the square of the signal contained in the panel.